

Application No.: 10/827,527Docket No.: 200400476-2 (1509-499)REMARKS

This response to the final rejection is submitted without amendment. However, the implication in the final rejection that the previous amendment changed the scope of the claims is incorrect. As pointed out in the previous response, the purpose of the previous amendment was merely for clarity.

Applicant traverses the rejection of claim 15 under 35 USC 112, second paragraph. The office action implies that a dependent claim, directed to an article in the form of a computer readable medium or storage device, wherein the article stores coded indicia for causing a data processor arrangement to perform the method of another claim is not in conformance with 35 USC 112, second paragraph. MPEP Sections 2173 and 2173.05f indicate the office action is incorrect in making such an assertion.

MPEP Section 2173 indicates the primary purpose of 35 USC 112, second paragraph, is to ensure that the scope of the claims is clear so the public is informed of the boundary of what constitutes infringement of the patent. A secondary purpose is to provide a clear measure of what the applicant regards as the invention so that a determination can be made as to whether the claimed invention meets all criteria for patentability and whether the specification meets the criteria of 35 USC 112, first paragraph, with respect to the claimed invention. Certainly, a member of a public is informed of the boundary of what constitutes infringement of claim 15. A member of the public who considers claim 15 would understand that claim 15 would be infringed if that member of the public made, used or sold a computer readable medium or storage device that causes a data processor arrangement to perform the method of claim 1. Similarly, claim 15 provides a clear measure of what the invention is so that a determination can be made as to whether the claimed invention meets all patentability criteria and that the specification meets the criteria of 35 USC 112, first paragraph. In this regard, the examiner had no problem in determining the scope of claim 15 since that claim has been rejected on art.

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MPEP Section 2173.05f indicates a dependent claim in one statutory class can depend on an independent claim in another statutory class. It is there indicated a claim which recites "The product produced by the method of claim 1." conforms with 35 USC 112, second paragraph. This section of the MPEP also indicates 35 USC 112, second paragraph is not violated by a claim directed to a method of producing a product by using the structure of another claim. Further, Ex parte Porter, 25 USPQ2d 1144 (Board of Patent Appeals and Interferences 1992) held that reference to "the nozzle of claim 7" in a method claim was in conformance with 35 USC 112, second paragraph.

The office action refers to Ex parte Lyell, 17 USPQ2d (Board of Patent Appeals and Interferences 1990), apparently in an attempt to support the proposition set forth in the office action that it is improper to have a claim that recites two different statutory classes. Firstly, applicant notes the Lyell decision predates the Porter decision so that the Porter decision takes precedence. In addition, the facts of the Lyell decision are quite different from those of the present case. In Lyell, the considered claim was directed to an automatic transmission work stand and a method of using it. In the present case, claim 15 is directed to a computer readable medium or storage device storing coded indicia. Applicants' claim 15 then goes on to state the coded indicia can cause a data processor arrangement to perform the method of claim 1. Thus, applicants' claim 15 does not define a method of using a data processing arrangement, nor does it define a method of using a computer readable medium or storage device. Consequently, the Lyell decision is inapposite.

Applicant traverses the rejection of claims 1-19 as being unpatentable over Scalzi et al. US Patent 6,075,937, in view of Bharadwaj, US Patent 5,894,576. The office action alleges Scalzi et al., at column 6, lines 9-19 and column 12, lines 18-21, discloses (a) identifying a set of target instructions semantically equivalent to a given source instruction. The office action admits, in connection with the discussion of claims 1 and 8, that the primary reference, Scalzi et al., does not disclose the requirements of these claims for either (b) identifying data dependencies in target instructions by

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analyzing a set of target instructions or (c) assigning an identifier to one or more of the target instructions for use by a code analyzer in scheduling the processing of target instructions in accordance with identified data dependencies. The office action alleges feature (b) is disclosed by Bharadwaj at column 4, line 61-column 5, line 14 and column 6, lines 57-63 and feature (c) is disclosed by Bharadwaj at column 5, lines 14-27 and column 7, line 16-35.

The admission in the office action that Scalzi et al. does not disclose feature (c), relating to scheduling the processing of target instructions, is contrary to the allegation in the office action that Scalzi et al. discloses a method of generating code for scheduling the execution of binary code translated from a source format to a target format. Consequently, the office action has a patent ambiguity with regard to the very important scheduling aspect of applicant's claim 1. Certainly, the relied on portions of Scalzi et al. have nothing to do with scheduling the execution of binary code translated from a source format to a target format. Nor do they mention identifying a set of target instructions semantically equivalent to a given source instruction. An example of a semantic of an instruction is in paragraph 0064 of the application as published. Based on the foregoing, the reliance on Scalzi et al. as a primary reference against applicant's claims 1 and 8 is improper.

The office action also alleges it would have been obvious to one of ordinary skill in the art to have modified Scalzi et al. as result of Bharadwaj to enable a translation system to be created with increased overall efficiency of the translated code. However, there is no rationale set forth in the office action as to how or why one of ordinary skill in the art would know that inserting features (b) and (c) would create a translation system with increased overall efficiency of the translated code. In addition, the action fails to indicate how one of ordinary skill in the art would have modified Scalzi et al. to include features (b) and/or (c). For these reasons, the office action has not attempted to establish a *prima facie* case of obviousness.

Applicant is unable to find any basis in column 5, lines 14-27 and/or column 7, line 16-35 of Bharadwaj for the claimed requirement of "assigning an identifier to one or

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more of said target instructions for use by a code analyzer in scheduling the processing of said set of target instructions in accordance with the identified data dependencies." The office action alleges the identified data dependencies are disclosed in column 6, lines 57-63 of Bharadwaj as being generated by data dependence analyzer 68 as a directed acyclic graph (dag). Column 5, lines 14-27 of Bharadwaj, in discussing operation of control flow analyzer 66, indicates that in one embodiment all "JS edges" in a region (defined in column 5, lines 2 and 3 as the portion of a control flow diagram over which scheduling is performed) must be removed by insertion of compensation blocks. Column 7, lines 16-35 states data readiness analyzer 72 creates and updates a data ready list for each block on a waveform by using the information concerning control flow and data dependence. The data ready list of a block includes the instructions that can be, but have not yet been, scheduled into the block and for which necessary predecessor instructions in the directed acyclic graph have been scheduled. An instruction may be at one of many states of "readiness," and an instruction at any of these states of readiness may appear on the data ready list for the block. The paragraph at column 7, lines 16-35 then goes on to discuss when an instruction may be considered ready in a block. Hence, column 5, lines 14-27 and/or column 7, line 16-35 of Bharadwaj do not disclose "assigning an identifier to one or more of said target instructions for use by a code analyzer in scheduling the processing of said set of target instructions in accordance with the identified data dependencies."

Dependent claims 2-7, 15 and 18, that include all the limitations of claim 1, and dependent claims 9-14 and 19, that include all the limitations of claim 8, are allowable with claims 1 and 8, respectively. In addition, some of these claims include limitations not found in the references relied on to reject them.

To reject claims 2 and 9, the office action relies on Scalzi et al.. Claims 2 and 9 more specifically define the requirement of claims 1 and 8, respectively, relating to assigning an identifier to one or more of the target instructions. In the rejection of claims 1 and 8, the office action specifically states Scalzi et al. does not disclose assigning an identifier to one or more of the target instructions. Hence, there is a non sequitur in the rejection of claims 2 and 9.

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In the rejection of claims 3 and 10, the examiner has taken official notice that it would have been obvious to one of ordinary skill in the art to analyze the target instructions first. This use of official notice is incorrect. Official notice can only be used in connection with notice of facts not in the record. A holding of obviousness is a conclusion of law, based on facts, but is not a fact. In addition, as pointed out in MPEP Section 2144.03A, the circumstances when official notice may be relied on are to be rare when an application is under final rejection. Official notice, unsupported by documentary evidence, should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art, are capable of instant and unquestionable demonstration as being well-known. The examiner has not met this burden in the rejection of claims 3 and 10.

The rejection of claims 5 and 12 incorrectly states Bharadwaj discloses, at column 4, lines 21-25 and lines 30-33, a code analyzer that optimizes the translated code for processing in a parallel processing environment by using the identifiers. Column 4, lines 21-25 and 30-33 described the flow diagram of Figure 5 which includes a series of sequential steps. There is no showing of parallel processing in Figure 5, nor is there any discussion of parallel processing in the relied on portions of the reference.

Bharadwaj, at column 4, lines 21-25 and/or lines 30-33 fails to indicate optimizing a translated code by using the identifiers of one or more target instructions for use by a code analyzer in scheduling the processing of a set of target instructions in accordance with identified data dependencies, as claims 5 and 12 require. Column 4, lines 21-25 merely indicate code generator 42 includes a translator, an optimizer, a scheduler, a register allocator and an assembly generator. Column 4, lines 30-33 indicates optimizer 52 receives low-level intermediate representations of a source program that correspond very closely to machine instructions to optimize these representations. Consequently, the rejection of claims 5 and 12 is incorrect.

The office action states "column 4, line 61-column 5, line 27 and column 6, lines 57-63" meet the requirement of claims 6 and 13. Presumably, the examiner meant to write the office action to indicate column 4, line 61-column 5, line 27 and column 6, lines

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57-63 of Bharadwaj meet the requirements of claim 6 and 13. In any event, this rejection is incorrect. Column 4, line 61-column 5, line 27 of Bharadwaj includes a description of the block diagram of scheduler 54 of Figure 5. It is there indicated that control flow analyzer 66 operates on the program being compiled and that, in one embodiment, all "JS edges" are removed by inserting compensation blocks. Column 6, lines 57-63 indicates data dependence analyzer 68 generates a directed acyclic graph representation of the target instructions in a region. The directed acyclic graph gives a hierarchy of data dependence between the instructions, showing how the instructions depend on the outcome of previous instructions. The description then goes on to state, at column 6, line 64-column 7, line 15, that the information in the directed acyclic graph is used by instruction prioritizer 72 to assign a priority to the individual instructions based on a number of factors, such as the height of an instruction. This does not mean a data dependency represented by a directed acyclic graph on an edge of the graph is signaled to a code analyzer.

Independent claim 16 is incorrectly rejected on the same basis as claims 1 and 2. This rejection is wrong because claim 16 includes limitations that are not in claim 1 or 2 and fails to include some limitations of claims 1 and 2. Claim 16 requires a set of transformation routines and a set of analysis routines. Because neither of these limitations is in claims 1 and 2 and the office action fails to (1) indicate where they are discussed in the applied references and (2) provide a rationale as to how and/or why Scalzi et al. and Bharadwaj would be combined to meet these limitations, the rejection is incorrect.

Applicant traverses the rejection of claim 20 as being obvious as a result of Hughes, US Patent 6,519,768. The office action incorrectly alleges Hughes discloses, at column 2, line 66-column 3, line 65, the fill and analysis routine generator requirement of claim 20. This portion of the reference indicates source interpreter code 11 is scanned to identify sequences corresponding to individual instructions in a source instruction set to derive binary templates 14. As indicated by step 21 in Figure 2 and the description thereof, certain subsequences can be removed as a result of the scanning. Next, the template source code 12 is scanned during step 22, causing

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constants that will be derived from literal values in the target instructions at translate run time to be removed and replaced by literal marker values. Then the start and end of each template source code sequence are marked during step 23 by planting codes in template source code 12. At system initialization, during operation 31, process 15 scans template 14 to locate the start and end of template 14 to enable translator 17 to locate template 14. Next, during step 32, process 15 scans template 14 to locate the marker values inserted during operation 22 and to locate all calls in template 14. During step 33, process 15 inserts, for each marker value in template 14, a fix up entry in data structures 16, but not in template 14. This fix up entry identifies the location of the marker value and specifies the data type of the constant value that is to be inserted into the code at translate run time. Also in step 33, process 15 inserts, for each call in template 14, a fix up entry in data structures 16; this fix up entry identifies the location of the call.

From the above, Hughes fails to disclose the claim 20 limitation for a fill and analysis routine generator arranged to be responsive to the templates for generating fill and analysis routines for identifying fillable positions in a template and for generating code to extract and deposit fields from the machine instructions in source code into a precompiled template. In particular, Hughes has no disclosure of generating fill and analysis routines for identifying fillable positions in templates 14 or any other templates.

The rejection of claim 20 is also improper because it alleges it would have been obvious to identify fillable positions in a template by parsing the template. The office action states such parsing would have been obvious to further analyze the code. Because the office action provides no rationale to support this position and gives no reason as to why such further analysis is needed or desirable, the action does not establish a *prima facie* case of obviousness with respect to claim 20.

Early issuance of a Notice of Allowance is in order.

The Examiner is invited to telephone the undersigned, Applicant's attorney of record, to facilitate advancement of the present application.

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To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 08-2025 and please credit any excess fees to such deposit account.

Respectfully submitted,

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